

Amendment to the Specification:

Prior to examination, please amend the specification as follows.

Beginning on page 1, line 1, please amend the title:

~~OPTICAL ELEMENT, LASER BEAM SOURCE, AND 2-D IMAGE FORMING~~  
~~DEVICE~~ OPTICAL ELEMENT, LASER LIGHT SOURCE, AND TWO-DIMENSIONAL  
IMAGE FORMING APPARATUS

Insert a new paragraph beginning on page 1, line 2, as follows:

--CLAIM OF PRIORITY

This application claims priority under 35 USC 371 to International Application No. PCT/JP2004/018361, filed on December 9, 2004, which claims priority to Japanese Patent Application No. 2003-411442, filed on December 10, 2003, each of which is incorporated by reference in its entirety.--

Amend the paragraph beginning on page 14, line 5 as follows:

Description of Numerals

3 reflection film

10,10a,10b,10c,10d,~~20~~15,30,40,50,60 optical element

11,11a,11b,11c,11d,12,12a,12b,12c,12d,13,13a,13b,13c,13d,~~24~~16,~~22~~17,~~23~~18,31,32,33,Wg  
waveguide

21,22 optical coupling parts

~~24~~16a,~~22~~17a,~~22~~17b,~~23~~18b inclined surface

~~24~~19a,~~24~~19b light passing regions

41,51,61,Ld semiconductor laser  
52 plano-convex lens  
62 cylindrical lens  
70 lens  
72 liquid crystal panel  
81 projector lens  
82 screen  
140,150,160,170 laser light source  
200,270 lighting system  
300 two-dimensional image forming apparatus  
L1,L1a,L2,L2a,L3 laser light

Amend the paragraph beginning on page 17, line 10 as follows:

When a light is incident to the light incident surface of the first waveguide 11, the incident light transmits through the first waveguide 11 and the rectangular prism ~~2a~~21 to be incident to the second waveguide 12. The light incident to the second waveguide 12 transmits through the waveguide 12~~b~~ and *the* rectangular prism ~~2b~~22 to be incident to the third waveguide 13. The light incident to the third waveguide 13 is emitted from an end surface of the third waveguide 13.

Amend the paragraph beginning on page 19, line 3 as follows:

To the contrary, in the first embodiment of the present invention, first to third waveguides 11 to 13 are disposed overlapping, and these waveguides 11 to 13 are optically coupled so that the output light from the first waveguide is incident to the second waveguide and the output light from the second waveguide is incident to the third waveguide by using ~~reflection~~ prisms 21 and 22. Thereby, the total of the lengths of these three waveguides 11 to 13 become the wave guiding distance of the light required to make the cross-sectional light intensity

distribution uniform. Therefore, it is possible to shorten the lengths in the light transmission direction of the respective waveguides and to greatly shorten the length of the entire device.

Amend the paragraph beginning on page 26, line 25 as follows:

Here, the three waveguides 11b, 12b, 13b are arranged in their width directions, respectively, and the light emitting end surface of the waveguide 11b and the light incident surface of the waveguide 12b are positioned in the same plain, and the light emitting end surface of the waveguide 12b and the light incident surface of the waveguide 13b are positioned in the same plain. Further, a rectangular prism 21b which optically couples the waveguide ~~11b~~12b and the waveguide 12b is disposed straddling the light emitting end surface of the waveguide 11b and the light incident side end surface of the waveguide 12b. Further, a rectangular prism 22b which optically couples the waveguide 11b and the waveguide 13b is disposed straddling the light emitting end surface of the waveguide 12b and the light incident side surface of the waveguide 13b.

Amend the paragraph beginning on page 29, line 11 as follows:

The optical element 2015 of this second embodiment is constituted by serially coupling the respective waveguides of the optical element 10 of the first embodiment, without using a prism.

Amend the paragraph beginning on page 29, line 14 as follows:

More particularly, the optical element 2015 shown in figure 5 has a first waveguide 2116 which has an end surface that is inclined by 45 degree with respect to the light propagation direction in the waveguide, a second waveguide 2217 which has both end surfaces that are respectively inclined by 45 degree with respect to the light propagation direction of the waveguide, and a third waveguide 2318 which has an end surface that is inclined by 45 degree with respect to the light propagation direction.

Amend the paragraph beginning on page 29, line 22 as follows:

Here, the inclined surface 2416a at an end side of the first waveguide 2416 is a reflection plain that reflects the light propagating in the waveguide to be reflected along the waveguide height direction. The inclined surface 2217b at an end side of the second waveguide 2217 is a reflection plain directing downwards that reflects the light that is incident along the waveguide height direction so as to make its advancing direction be the waveguide length direction, and the inclined surface 2217a at the other end side of the second waveguide 2217 is a reflection plain directing upwards that reflects the light propagating in the waveguide so as to make the same emit along the waveguide height direction. The inclined surface 2318b at an end side of the third waveguide 2318 is a reflection plain directing downwards that reflects the light incident along the waveguide height direction so as to make its advancing direction be the waveguide length direction.

Amend the paragraph beginning on page 30, line 13 as follows:

In this optical element 2015, the second waveguide 2217 is stacked on the first waveguide 2416 so that the light propagation directions in these waveguides are parallel to each other and that the upward directing reflection plain 2416a at an end side of the first waveguide 2416 and the downward directing reflection plain 2217b at the other end side of the second waveguide 2217 confront to each other. Further, the third waveguide 2318 is stacked on the second waveguide 2217 so that the light propagation directions in these waveguides are parallel to each other and that the upward directing reflection plain 2217a at an end side of the second waveguide 2217 and the downward directing reflection plain 2318b at the other end side of the third waveguide 2318 confront to each other. The first waveguide 2416 and the second waveguide 2217 disposed thereon, and the second waveguide 2217 and the third waveguide 2318 disposed thereon, are respectively adhered to each other at their confronting surfaces by such as adhesion.

Amend the paragraph beginning on page 31, line 4 as follows:

Here, by the upward directing reflection plain 2416a of the first waveguide 2416 and the downward directing reflection plain 2217b of the second waveguide 2217, the optical path coupling part which couples the first waveguide 2416 and the second waveguide 2217 is provided, and by the upward directing reflection surface 2217a of the second waveguide 2217 and the downward directing reflection surface 2318b of the third waveguide 2318, the optical path coupling part which couples the second waveguide 2217 and the third waveguide 2318 is provided.

Amend the paragraph beginning on page 31, line 13 as follows:

Here, at the upper and lower both side surfaces of the respective waveguides 2416, 2217, 2318 and the external surfaces of the optical coupling part, for example, a high reflection film such as a metal film comprising aluminum material is formed. Further, at the light coupling parts which couple the upper and lower waveguides, glass material constituting the two waveguides are adhered, and these adhesion plains constitute light passing regions 2419a and 2419b where high reflection films are not formed.

Amend the paragraph beginning on page 31, line 22 as follows:

The light incident to the light incident side end surface of the first waveguide 2416 propagates through the first waveguide 2416 and the optical coupling part, and is incident to the second waveguide 2217. The light incident to the second waveguide 2217 propagates through the second waveguide 2217 and the optical coupling part, and is incident to the third waveguide 2318. Then, the light incident to the third waveguide 2318 is emitted from the light emitting side end surface.

Amend the paragraph beginning on page 32, line 5 as follows:

In this second embodiment, the first to third waveguides 2116 to 2318 are disposed stacking with each other, and these waveguides 2116 to 2318 are coupled with each other by utilizing inclined surfaces which are formed by processing the end surfaces of the respective waveguides so that the light emitted from the first waveguide 2116 is incident to the second waveguide 2217 and the light emitted from the second waveguide 2217 is incident to the third waveguide 2318. Therefore, the total of the lengths of the three waveguides 2116 to 2318 become the light wave guiding distance that is required to make the cross-section intensity distribution uniform. Thus, it is possible to shorten the lengths of the respective waveguides in the light propagation direction as well as to shorten the length of the entire device to a great extent.